REMARKS

Favorable consideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-13 are presently pending in this application, Claims 1-5 and 11-13 having been withdrawn from further consideration by the Examiner, Claims 6-10 having been amended by the present amendment.

In the outstanding Office Action, the drawings were objected to because of informalities; the specification was objected to for informalities; Claims 6-10 were rejected under 35 U.S.C. §112, second paragraph, for being indefinite; Claims 6-9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Letemps et al. (U.S. Patent 4,957,528); and Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over Letemps et al. in view of Applicant's Admission as applied to Claim 6 above, and further in view of Takeda et al. (U.S. Patent 6,397,634) and Abe (U.S. Patent 4,343,645).

First, as discussed with Examiner Lopez on June 10, 2003, Applicants acknowledge that the Notices of Allowance mailed on May 22, 2003, and May 29, 2003 were erroneously issued. Accordingly, Applicants hereby respond to the outstanding Office Action dated March 12, 2003.

In response to the objection to the drawings, the specification has been corrected in consistent with the noted drawings, Figures 4 and 6.

With regard to the rejection under 35 U.S.C. §112, second paragraph, Claims 6-10 have been amended to clarify the subject matter recited therein. Thus, Claims 6-10 are believed to be in compliance with the requirements of the statute. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work in a joint effort to derive mutually satisfactory claim language.

Briefly recapitulating, Claim 6 of the present invention is directed to an air-cooling/tempering method for air-cooling and tempering a glass plate, including providing a transferring device configured to transfer glass plates sequentially through an air-blowing area and a plurality of air-blowing heads positioned along the transferring device such that air is blown to upper faces and lower faces of the glass plates, the air-blowing area being divided into a plurality of areas along a transferring direction of the transferring device, stopping blowing of air in the air-blowing area at an uppermost stream area in the transferring direction from the beginning of a transfer of a glass plate into the air-blowing area, starting the blowing of air in the uppermost stream area when an entirety of the glass plate is transferred into the uppermost stream area, and stopping the blowing of air in the uppermost stream area of the air-blowing area after the entirety of the glass plate has been transferred from the uppermost stream area to a downstream side of the air-blowing area. By starting and stopping the blowing of air as such, a subsequent glass plate can begin its transfer into the air-blowing area before the previous glass plate completely pass through the air-blowing area, thereby efficiently shortening an interval for transferring glass plates in the air-blowing area while air-cooling and tempering the glass plates effectively.[1]

The outstanding Office Action asserts that Applicants' specification, page 4, line 21, to through page 6, line 27, describes starting the air blowing once an entire first glass plate is in the air blowing area formed by air blowing heads. Nevertheless, this conventional method does not teach "stopping the blowing of air in the uppermost stream area of the air-blowing area after the entirety of the glass plate has been transferred from the uppermost stream area to a downstream side of the air-blowing area" as recited in Claim 6. As discussed in Applicants' specification, according to this conventional method, the blowing of air is

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[1] See Specification, page 13, line 7, to page 14, line 11.

stopped only after passing the glass plate completely through the air blowing heads, i.e., completely out of the air blowing area, but not "after the entirety of the glass plate has been transferred from the uppermost stream area to a downstream side of the air-blowing area." As such, this conventional method requires a much longer interval than the method recited in Claim 6. Therefore, the subject matter recited in Claim 6 is clearly distinguishable from the conventional method discussed in Applicants' specification.

Letemps et al. and Abe disclose a method for bending and tempering glass plates and a quenching apparatus for tempering curved glass plates, respectively. However, as stated in the outstanding Office Action, neither Letemps et al. nor Abe is believed to teach "stopping the blowing of air in the uppermost stream area of the air-blowing area after the entirety of the glass plate has been transferred from the uppermost stream area to a downstream side of the air-blowing area" as recited in Claim 6. As such, the subject matter recited in Claim 6 is believed to be also distinguishable from Letemps et al. and Abe.

With regard to the 35 U.S.C. §103 rejection based on Takada et al., Applicants respectfully submit that the present application, filed February 20, 2001, and given Serial No 09/763,235, and Takada et al., patented June 4, 2002, as U.S. Patent 6,387,634 B1, were at the time of the invention of the present Application was made, subject to an obligation of assignment to Asahi Glass Company Ltd. Therefore, as MPEP 2136.02 states that "[f]or applications filed on or after November 29, 1999, if the applicant provides evidence that the application and prior art reference were ... subject to an obligation of assignment to the same person, at the time of the invention was made, any rejections under 35 U.S.C. 102(e)/103 based on such a commonly owned reference should not be made or maintained," it is respectfully requested that the outstanding rejection based on Takada et al. be withdrawn.

Because none of the alleged admission, Letemps et al. and Abe discloses the stopping

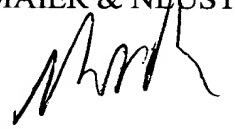
subsequent to the starting of the blowing air as recited in Claim 6, even the combined teachings of these cited references are not believed to render the subject matter recited in Claim 6 obvious.

For the foregoing reasons, Claim 6 is believed to be allowable. Furthermore, since Claims 7-10 depend directly from Claim 6, substantially the same arguments set forth above also apply to these dependent claims. Hence, Claims 7-10 are believed to be allowable as well.

In view of the amendments and discussions presented above, Applicants respectfully submit that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Robert T. Pous
Registration No. 29,099
Attorneys of Record

22850

Tel: (703) 413-3000
Fax: (703) 413-2220
GJM/RTP/AY:fmw
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Marked-Up Copy
Serial No: **09/763,235**
Amendment Filed on:
June 12, 2003

IN THE SPECIFICATION

Please replace two paragraphs at page 24, line 25, through page 25, line 15, with the following text:

--The above-mentioned rotating/driving means and the vertical direction driving means are provided for all other rollers 22B, 22C, ... Servomotors 78A, [78B,] ..., 96A, [96B,] ... for these driving means are controlled by a motion controller.

When the motion controller receives information of a model for the glass plate 18 from an external input means, it prepares angular speed control data and vertical movement control data for the rollers 22A, 22B, ... so as to correspond to the curvature of the glass plate 18 of the model. Then, the servomotors 78A, [78B,] ... are controlled based on the prepared angular speed control data, and the servomotors 96A, [96B,] ... are controlled based on the vertical movement control data. Namely, the motion controller performs multiple axis control for each of the rollers 22A, 22B, ... so that the glass plate 18 bend-shaped in the shaping zone 14 is transferred while the formed shape is maintained.--

Please replace the paragraph at page 29, lines 4-19, with the following text:

--On the other hand, the lower air-blowing [head] heads 26A, 26B [is] are arranged along the [roller] rollers 22A, 22B, respectively, and [is] are held by [a holder] holders ([a] lower supporting [frame] frames) 138A, 138B, respectively. The [holder] holders 138A, 138B [has] have both end portions to which rods of [a pair] pairs of cylinders (lower supporting frame elevating means) 140A, 140A, 140B, 140B are connected, respectively.

The cylinders 140A, 140A, 140B, 140B are respectively attached to connecting arms 142A, 142A, 142B, 142B, and the connecting arms 142A, 142A, for example, are capable of sliding on guide rails 144A, 144A disposed on inner side faces of vertically movable frames 70A, 70A via slide blocks 146A, 146A. Similarly, vertically movable frames 70B, 70C are so constructed. Accordingly, with the vertical movement of the connecting arms 142A, 142A, the lower air-blowing head 26A is moved vertically in connection with the connecting arms 142A, 142A. The head is moved vertically according to the expansion or shrinkage of the rods of the cylinders 140A, 140A when they are driven.--

IN THE CLAIMS

Please amend Claims 6-10 as follows:

--6. (Amended) An air-cooling/tempering method [for a glass plate] for air-cooling and tempering [the] a glass plate, [by blowing air to an upper face and a lower face of the glass plate transferred sequentially by means of a transferring means through air-blowing heads disposed along the transferring means, which comprises] comprising:

providing [using the] a transferring device configured to transfer glass plates sequentially through an air-blowing area and a plurality of air-blowing heads positioned along the transferring device such that air is blown to upper faces and lower faces of the glass plates, [in which] the air-blowing area [is] being divided into a plurality of areas along a transferring direction of the transferring [means] device;

[a step of] stopping [the] blowing of air in the air-blowing area at an uppermost stream [side] area in the transferring direction from the beginning of [the] a transfer of a [portion of the] glass plate into the air-blowing area [at an uppermost stream side in the

transferring direction in the air-blowing head to the transfer of the entirety of the glass plate];

[a step of] starting the blowing of air in [the air-blowing area at] the uppermost stream [side in the transferring direction from the transfer of the] area when an entirety of the glass plate is transferred into the [air-blowing area at the] uppermost stream area [side in the transferring direction to the transfer of the glass plate to a downstream side of the air-blowing area at the uppermost stream side in the transferring direction]; and [a step of]

stopping the blowing of air in [the air-blowing area at] the uppermost stream area of the air-blowing area [side in the transferring direction] after the entirety of the glass plate has been transferred from the [air-blowing area at the] uppermost stream [side in the transferring direction] area to a downstream side of the air-blowing area.

7. (Amended) The air-cooling/tempering method according to Claim 6, wherein the plurality of areas in the air-blowing [head has an air-blowing] area [which is divided into] comprises a first area at an upper stream side in the transferring direction [of the transferring means] and a second area at [a] the downstream side thereof, and wherein [a step of] the blowing of air starts in the first and second areas when the entirety of the glass plate is transferred into the first area, [a step of stopping] the blowing of air stops in the first area when the entirety of the glass plate is passed through the first area and [a step of reopening] the blowing of air restarts in the first area when [the next] an entirety of a subsequent glass plate is transferred into the first area [to which the blowing of air has been stopped, are repeated sequentially].

8. (Amended) The air-cooling/tempering method according to Claim 6, wherein [the air-blowing head has an air-blowing area which is divided into a plurality of areas along the transferring direction of the transferring means, and wherein a step of] the blowing of air from all [divided] the plurality of areas starts when the entirety of the glass plate is

transferred into the air-blowing area [of the air-blowing head], [a step of stopping] the blowing of air stops in [the] a sequential order of areas through which the glass plate is passed, [a step of reopening] the blowing of air restarts from [the] all [divided] the plurality of areas when [the] an entirety of [the next] a subsequent glass plate is transferred into [the] an areas to which the blowing of air is stopped, and [a step of stopping] the blowing of air stops in [the] a sequential order of areas through which the subsequent glass plate is passed[, are repeated sequentially].

9. (Amended) The air-cooling/tempering method according to Claim 6, wherein [an air-blowing area in the air-blowing heads is divided into a plurality of areas along the transferring direction of the transferring means, and] the blowing of air [is blown from] is carried out from only [the air-blowing area of the] an area which corresponds to [the] a position of the glass plate during the transfer when the entirety of the glass plate is being transferred [into] in the air-blowing area [of the air-blowing head].

10. (Amended) The air-cooling/tempering method according to Claim 6, wherein the transferring device comprises a plurality of tempering rollers [are used as the transferring means; the plurality of tempering rollers] configured to move vertically at [the] a position where the glass plate is being transferred [are moved vertically] with the transfer of the glass plate so that a curved plane is formed in at least a portion of [the] a transferring plane formed by the tempering rollers at [that] the position, the curved plane being in correspondence with a curved shape of the glass plate in the transferring direction of the glass plate; the plurality of tempering rollers are configured to sequentially moved vertically with the transfer of the glass plate so that the curved plane is shifted in the transferring direction of the glass plate with the transfer of the glass plate, and [a] the plurality of air-blowing heads [in the air-blowing head] are each disposed between adjacent tempering rollers of the plurality of

tempering rollers and configured to [is moved] move vertically so as to correspond to the vertical movement of each of the plurality of tempering rollers, respectively [whereby the glass plate is air-cooled and tempered].--